CLAIMS

1. An installation for manufacturing objects such as receptacles by thermoforming pellets (12) of thermoplastic material, said installation including conveyor means (54, 88, 88', 880, 880') for conveying the pellets through the various stations in the installation, said stations including a heating station (10) for heating said pellets, which station includes bottom heater means (52, 52', 520) and top heater means (62, 62', 620), and a thermoforming station (14) for plastically deforming the heated pellets by stretching them;

said installation being characterized in that the conveyor means comprise conveyor elements (46, 460) defining cells (48) which are open upwards and downwards, and each of which is suitable for containing one pellet (12) while the entire top and bottom faces of the pellet remain unobstructed, means for depositing the pellets in the cells (54, 50, 500), drive means (54, 88, 88', 880, 880', 94) for driving the conveyor elements through the heating station between the bottom heater means (52, 52', 520) and the top heater means (62, 62', 620), and transfer means (20) for transferring the heated pellets to the thermoforming station, and in that the bottom heater means (52, 52', 520) co-operate with a support for the pellets while said conveyor elements are being driven through the heating station.

2. An installation according to claim 1, characterized in that the bottom heater means comprise a bottom heater plate (52, 52'), and in that said plate constitutes a support for the pellets (12) while the conveyor elements (46) are being driven through the heating station.

3. An installation according to claim 2, characterized in that it includes a cold support plate (56, 56') which is disposed on one side of the bottom heater plate (52,

52'), and whose surface (56A, 56'A) extends in the same horizontal plane as the surface of said heater plate (52A, 52'A), and in that the bottom heater plate and the cold support plate are mounted to move sideways between a first position in which the bottom heater plate is suitable for supporting the pellets and a second position in which the cold support plate (56, 56') is suitable for supporting the pellets.

4. An installation according to claim 3, characterized in that it includes a cold top plate (66, 66') which is disposed above the cold support plate (56, 56'), and in that said cold top plate, and the top heater means (62, 62') are mounted to move sideways between a first position in which the top heater means are situated above the pellets and a second position in which the cold top plate is situated above the pellets.

5. An installation according to any one of claims 1 to 4, characterized in that the top heater means comprise a top heater plate (62, 62') that presents a bottom surface (62A, 62'A) suitable for being in contact with the top faces of the pellets (12).

6. An installation according to claim 1, characterized in that it includes a bottom belt (500) made of a heat-conducting material, and means for transmitting the heat generated by the bottom heater means to said belt, in that the bottom belt constitutes the support for the pellets which rest on the top surface of said belt (500B), and in that the bottom belt is driven through the heating station in a manner synchronized with the conveyor elements (460).

7. An installation according to claim 6, characterized in that the bottom heater means comprise a bottom heater plate (520), in that said bottom plate presents a top

surface (520B) in thermal contact with the bottom surface of the belt (500A), and in that the bottom belt constitutes the support for the pellets which rest on the top surface of said belt (500B).

8. An installation according to claim 6 or claim 7, characterized in that it includes a top belt (600) made of a heat-conducting material, and means for transmitting the heat generated by the top heater means to said belt, in that the bottom surface (600A) of said belt is suitable for being in contact with the top faces of the pellets, and in that the top belt is driven through the heating station in a manner such that it is synchronized with the conveyor elements.

9. An installation according to claim 8, characterized in that the top heater means comprise a top heater plate (620), and in that said top plate presents a bottom surface (620A) in thermal contact with the top surface of said belt (600B).

10. An installation according to any one of claims 1 to 9, characterized in that the conveyor elements are constituted by conveyor slats (46, 460) presenting a thickness (e) at the most substantially equal to the thickness (E) presented by the pellets before they are thermoformed.

11. An installation according to claims 6, 8, and 10, characterized in that it further includes means for pressing the pellets (12) via the belts (500, 600).

12. An installation according to claim 11, characterized in that the heater plates (520, 620) press the pellets (12) via the belts (500, 600).

13. An installation according to claim 6 and any one of claims 1 to 12, characterized in that it includes support rods (980) for supporting the bottom belt (500), which rods are disposed under said bottom belt.

14. An installation according to claim 13, characterized in that the bottom heater means comprise a bottom heater plate (520) which, in its top face, is provided with grooves (990) suitable for receiving the support rods (980).

15. An installation according to any one of claims 1 to 14, characterized in that the conveyor elements are constituted by conveyor slats (46), in that each cell (48) is defined between an upstream conveyor slat (46A) and a downstream conveyor slat (46A) disposed in succession in the direction in which the pellets are conveyed.

16. An installation according to claim 15, characterized in that the outline of each conveyor slat (46) is provided with a downstream concave edge (48A) and with an upstream concave edge (48B) that are mutually aligned in the conveying direction (F) in which the pellets (12) are conveyed, the downstream concave edge of a first slat being suitable for defining a cell (48) with the upstream concave edge of a second slat disposed downstream from said first slat.

17. An installation according to claim 16, characterized in that it includes means for disposing the pellets (12) in a stack on an inlet table (50) whose surface (50A) extends in the same horizontal plane as a top surface (52A, 52'A) of the support for the pellets (52, 52'), in that the conveyor means include means (110, 112, 108) for bringing a conveyor slat (46C) onto the inlet table in a waiting position, and in that the waiting position is a

position in which the downstream concave edge (48A) of said slat is situated facing the stack, and drive means (54) for moving said slat downstream so that said concave edge co-operates with the bottom pellet in the stack to drive said pellet downstream, at least until said slat comes into an intermediate position (46D) in which the upstream concave edge (48B) of said slat is situated in front of the stack.

18. An installation according to claim 17, characterized in that the drive means (54) comprise a drive member that moves in reciprocating manner between a first position in which it is suitable for co-operating with a slat in the waiting position (46C) and a second position in which it places said slat in its intermediate position (46D), and in that, when a slat reaches its intermediate position, it pushes the slats disposed in front of it downstream.

19. An installation according to any one of claims 1 to 16, characterized in that it comprises means for depositing pellets (700) in the locations of cells defined by conveyor elements (46, 460) on the top surface of an inlet support (50, 500), during a stop stage, in an upstream region of the heating station.

20. An installation according to any one of claims 1 to 19, characterized in that it includes rails (88, 88') suitable for supporting the slats by holding them out of contact with the heater plates (52, 52', 62, 62').

21. An installation according to claim 10, and to any one of claims 1 to 19, characterized in that it includes belts (880, 880') to which the side ends of the slats are fixed, and which drive the slats through the heating station.

22. An installation according to any one of claims 1 to 21, characterized in that the means for transferring the heated pellets to the thermoforming station comprise a pick-up member (20), disposed downstream from the heating station (10) and suitable for picking up a pellet (12) that is situated in a cell.

23. An installation according to any one of claims 15 to 22, characterized in that the pellet that is picked up is situated between a downstream conveyor slat (46F) and an upstream conveyor slat (46G), and in that said installation includes means for moving the downstream conveyor slat away from the upstream conveyor slat before said member picks up the pellet.

24. An installation according to any one of claims 1 to 23, characterized in that it includes a shaping device (155, 150A 152A) disposed downstream from the heating station and suitable for co-operating with the peripheries of the pellets (12) before they are thermoformed.

25. An installation according to claim 24, characterized in that the shaping device comprises a support edge (150A) and a shaping clamp (155) having two arms (155A, 155B) suitable for being opened when a pellet is put in place on the support edge, and for being closed again to define between them a shaping outline (155'A, 155'B) for the pellet.

26. An installation according to claim 25, characterized in that the support edge forms a die-stamping edge (150A), and in that the shaping device further comprises a die stamp (152A) suitable for co-operating with the die-stamping edge for die-stamping the peripheral region of a pellet while said peripheral region is held captive in the shaping device.

27. An installation according to any one of claims 24 to 26, characterized in that the shaping device (150A, 152A, 155) is disposed in the thermoforming station.